AMERICAN VETERINARY REVIEW,

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EDITORIAL.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.—Twenty-seventh anniversary meeting—the day of consolidation—the *National Association* is established beyond doubt—all passed harmoniously—pleasant receptions—the welfare of the profession was at stake, hence the success of the meeting—large assembly of veterinarians—fifteen States represented—New Jersey, Rhode Island, Maine and Connecticut absent—meeting of the Comitia Minora always slow and late—reception by Dr. Williams of Illinois—forty-two new members elected—a few dropped—the committees for once all ready to report—the election of officers confirms the desire of the members for friendship and harmonious work—the reading of the papers listened to by over one hundred members—interesting discussions follow—the banquet—numerous good toasts, well answered—our condolences to absent friends—*no revision of the by-laws.*

UNITED STATES VETERINARY MEDICAL ASSOCIATION.—The twenty-seventh anniversary meeting has been held; the day of consolidation has passed and the fact of consolidation is accomplished. The veterinarians of both the East and the West have met in Chicago, and as the gratifying result of this meeting the Association has at last confirmed its right to the title assumed in 1863, at the Astor House in New York, and has established beyond doubt the fact that it was indeed a NATIONAL ASSOCIATION, and all of this has been accomplished not only without the slightest difficulty, but with the manifestation of a spirit of concord and harmony of feeling such as has never before been exhibited in this country by the members of a profession who have hitherto been almost entirely lacking in community of interests and sympathy of sentiment, and personally comparative strangers one to another. It

could, however, scarcely have been otherwise, all things being considered in the past. The veterinarians of the regions both east and west of the Alleghanies, who met in Chicago, knew that the great object in view, aside from social meetings and the reinforcement of existing links of friendship and acquaintanceship, was to be the consummation of an important measure for the advancement of the interests of the profession, no less indeed than a national exhibition of the army of those guardians of the national wealth, the value of whose offices to their countrymen Americans have at last begun to look at intelligently, and with a just appreciation of the estimation in which their noble calling should be held. These are among the results which are thus far secure, and who will venture to predict the further advantages which may accrue in the near future, to the Association, to the profession generally, and to each individual member and practitioner?

Considered altogether, the meeting was a grand success. More than 120 members answered to the roll call, and at one time we counted 109 members present, in the large room of the Auditorium building in which the meeting was held. Fifteen States, together with the District of Columbia, were represented, comprising Massachusetts, New York, Delaware, Pennsylvania, Maryland, Kentucky, Ohio, Michigan, Indiana, Wisconsin, Missouri, Illinois, Minnesota and South Dakota. For the first time in many years New Jersey was not represented, nor were Connecticut, Rhode Island, or Maine, and the absence of the faces of the faithful old members from these States threw a little gloom on the party which met by agreement in New York on Sunday morning to start from the city in company.

The Comitia Minora held a meeting on the morning of the 16th, and what a meeting it must have been! Certainly one of the old kind, long and tedious, for the session so encroached upon the hours of the afternoon, as to prevent the assemblage of the general meeting until 2:30 P. M.

Professor C. B. Michener, after listening to an address of welcome from Dr. W. L. Williams, V.S., of Bloomington, Illinois, responded in behalf of the Association, and then the

meeting settled itself to serious work. The reports of the various committees were successively called up and read and recorded, and we scarcely expect to be believed when we say that they were all represented. As the time occupied in the reading of these papers had brought the meeting quite into the middle of the day, their discussion was postponed to a later period, and the next meeting passed to the subject in order, consisting of applications for membership, forty in number, all of whom, with two honorary members, were upon recommendation of the Comitia Minora, duly elected. A few applicants, however, were not accepted, and quite a number had their names dropped from the roll. The election of officers followed, an incident of the meeting which to some members was possibly the critical event of the occasion. For ourselves, however, we cannot believe that any course other than that which was adopted, could have secured any respectable support. The election was made with careful respect to what might be called the rights of each section of the country, if indeed the existence of sectional "rights" of such a character can be conceded, but in fact, no weight was given to any such considerations. It was not a question of Eastern or Western prominence in the Association; it was a selection of officers from the membership, without other distinction than that of character and fitness, or other motive than that of securing by a fair canvass the selection of the best men for their positions and for the welfare of all, with a view to the highest advancement of the interests of the whole body. Professor R. S. Huidekoper was elected President, Dr. W. L. Williams of Illinois, was elected Vice-President, and the offices of Secretary and Treasurer were continued in the hands of those old servants of the Association, Dr. W. H. Hoskins, of Pennsylvania, and Dr. J. L. Robertson, of New York. The various committees were appointed at a later hour, and the first day of the meeting closed with a short discussion of the committee reports, that of the Committee on Diseases occupying, however, the greater part of the afternoon.

On the second day the meeting was called to order with a sufficient approach to punctuality, and the time was well im-

proved in carrying out the plan laid down in the programme, viz.: the reading of the papers of Dr. Salmon, on Bacteriology; of Professor A. Liautard, on Veterinary Jurisprudence; of Professor R. S. Huidekoper, on Contraction of the Horse's Foot. Papers were also presented by Dr. G. Berns, of Brooklyn, N. Y., J. C. Myers, Sr., of Cincinnati, O., Professor O. Schwartzkopf, of Minnesota, and others. The interest in the paper of Dr. Salmon was considerably increased by the magnificent illustrations presented by the author, consisting of a number of slides exhibiting microscopic preparations of hog cholera and Texas fever, shown through the stereopticon. The preparations were generally in good condition, and the points they illustrated, especially those in the pathology of Texas fever, were most interesting, as opening a new sphere in the researches of this bovine affection.

All the papers were followed by more or less discussion, and the meeting adjourned at the call of the Secretary, to meet on the third Thursday of September next.

In the evening sixty members partook of a magnificent banquet at the Palmer House, which apparently, no one failed to enjoy, not only in respect to the gastronomic quality of the good things served, but with an added zest derived from the evidence of the harmony which had characterized the meeting, and the renewal of the good fellowship firmly established between the veterinarians of the United States.

In closing this concise report, to which we will have occasion to add hereafter, we feel it to be our duty to express to those of our friends who failed to attend the meeting, our regret that their absence had deprived us of the great anticipated pleasure of taking them once more by the hand, but at the same time will proffer them a word of consolation, in case they should feel over sorry for their mistake in staying at home, by simply saying that this meeting was the largest, the most interesting and most satisfactory on all accounts, of any yet held by the Association, and was also so far unique in its proceedings, *that no proposal was offered for the alteration of the By-Laws!*

"FOR ALMA MATER'S SAKE." In our last two issues, under

this title, the attention of many of our readers, and likewise of the profession at large, was invited to the plan which was being carried out by Dr. Coates, through the alumni of the American Veterinary College, for the collection of a fund sufficient to empower that institution to erect a proper building. It gives us great pleasure to inform the friends of the undertaking that the plan is a success. The alumni have responded handsomely to the call made on them in behalf of their alma mater, and only eight thousand dollars now remain to be subscribed, Although Dr. Coates is likely to receive but few if any more answers to his circulars, there is still time enough for those who are yet late, to hurry in their notices of adhesion to the plan, and then the work of collecting will at once be started. The few thousands wanted will without difficulty be obtained from friends outside. We shall not fail to keep our readers posted in respect to the progress made in carrying forward the new undertaking.

But before closing our remarks on the subject we feel in duty bound to correct an erroneous statement contained in our July issue, where on page 171 we stated that in one of the attempts made by the Board of Trustees of the college, the sole result obtained was "a gift of $25 contributed by some anonymous friend." We had thoughtlessly overlooked the fact that in answer to the same call, another check for the same amount had been forwarded to one of the members of the Board of Trustees by Dr. F. S. Billings. We regret our oversight in the July REVIEW, and take pleasure on this occasion in doing justice to the empressement and willingness of Dr. Billings in assisting the American Veterinary College in her efforts to find and found a new home.

ORIGINAL ARTICLES.

UNSUCCESSFUL OPERATION FOR THE CURE OF ROARING.

By W. L. WILLIAMS, V.S., Bloomington, Ill.

In recording the following case of excision of the left arytænoid cartilage for the cure of roaring, without a successful issue, it is not intended to in the least discredit Dr. Fleming's

operation, but rather to point out possible errors and obstacles which the inexperienced operator may encounter, as well as some of the pathological changes which may follow and thwart our efforts to remedy the unsoundness of the animal.

The subject, a four-year-old heavy draft gelding, was so badly affected as to be utterly worthless, being not only incapable of any labor on account of the extreme dyspnœa, but did not cease to roar loudly with each inspiration when standing quietly in the stall. The case was so unusually severe, that bi-lateral disease was suspected, but careful examination revealed a distinct depression over the left arytænoid cartilage, while the right appeared, so far as could be detected by external manipulation, to be in its normal position.

The animal was presented for operation at our infirmary, October 19th, 1887, and it was undertaken without the full complement of instruments advised by Dr. Fleming, ordinary straight scalpels and finger knives being substituted for the special knives recommended, but at that time not procurable here. We aimed to follow the Fleming method throughout, and so will note only the points of special interest.

On opening the larynx the left arytænoid was seen to be perfectly passive, while the right cartilage was active and apparently normal. Quite unexpectedly we found about one or two fluid ounces of a thick viscid mucus resting in the concavity formed by the arytænoid and cricoid cartilages, which it was necessary to remove before proceding further, and probably owing to our surprise, we attempted to dislodge it with the sponges, by which we lost valuable time, permitting our patient to partly recover from the anæsthesia before we were ready for the essential part of the operation—the excision of the cartilage—and we were put to the necessity of holding the laryngeal wound shut until anæsthesia could again be produced. The left arytænoid cartilage and left vocal cords were then carefully removed, except with possibly some haste, fearing a second return to consciousness before the completion of our operation.

Although, as stated, we followed as closely as possible the *modus operandi* of Dr. Fleming, we found, when the horse had regained his feet, that the hemorrhage from the seat of exci-

sion was far more important than anticipated, the blood escaping in almost a continuous stream, and increasing rather than decreasing in flow for several hours, necessitating the retention of the tampon canula in the trachea for some twenty-four hours. Otherwise, the animal progressed apparently well, ate promptly and readily as soon as food was allowed, and was returned to the owner, turned to grass and the wound properly attended to.

For some weeks everything seemed favorable, and a cure was definitely anticipated, but after ten or twelve weeks it became apparent that the animal was retrograding and that the operation was largely a failure. He gradually grew worse, and was finally returned to us, in March, 1890, for examination, and if advisable, for further operation, being at that time fully as bad as before treatment.

Upon external examination we found that the tracheal rings included in our original incision had collapsed, the trachea being flattened out transversely so that its sides were almost in contact, and its channel nearly occluded. This defect we decided to remedy by inserting a permanent silver trachea tube in the collapsed portion, and when opening the trachea for applying the tube, the larynx was examined by means of the electric lamp, and although it looked quite constricted, the right arytænoid cartilage was still active.

The trachea tube failed, however, to relieve the dyspnœa, and the insertion of a tracheotomy tube was rendered imperative. After waiting long enough to fully determine that the dyspnœa was essentially laryngeal and insurmountable, the animal was destroyed and the larynx carefully removed and preserved.

Besides the aforementioned collapsed tracheal rings which offer nothing special in volume or consistence, there was noted a narrowing, especially from side to side, of the inferior laryngeal opening, and a well-marked, almost osseous hypertrophy of the cricoid cartilage throughout its entire extent, being quite unyielding and fully three-quarters of an inch in diameter at the sides, where the thickening is most marked.

The superior laryngeal opening was also considerably con-

stricted, apparently from excessive contraction of the cicatricial tissue, the right arytænoid cartilage being drawn downwards and inwards. The muscles of the right arytænoid cartilage were of normal volume and appearance, and in all respects, except as noted, the larynx appeared natural.

The extreme dyspnœa was apparently the result of the constriction at the upper portion of the larynx, with the resultant displacement of the remaining arytænoid cartilage, but were this overcome, we are still confronted with the cricoid and tracheal constrictions, which although probably less important than the other, are yet quite serious.

A careful study of this larynx in *situ* with the known facility with which the animal swallowed during life, would seem to show that both arytænoid cartilages can be removed by the Fleming method, with the same impunity as one, in so far as swallowing is concerned. Whether the œsophagus would in such a case descend low enough to partially occlude the laryngeal opening and thus still interfere with inspiration, is a point upon which we could not hazard an opinion. However, is not the removal of the right cartilage the most promising plan for successfully reclaiming some of those roarers which are still useless after the excision of the left arytænoid?

To what shall we attribute the pathological changes enumerated? First, it is quite evident that almost from the start, the operation was not as neatly done as might have been. Dr. Fleming's treatise—"Roaring in Horses"—fails to forewarn the inexperienced operator regarding the large collection of viscid mucus which we encountered in the larynx and which it was necessary to remove, before attempting excision of the cartilage, and we inadvertently attempted to dislodge it with the handled sponges, whereas the large syringe which was at hand, as advised by Dr. Fleming for other purposes, should have been used here to withdraw the mucus, and no time would have been needlessly sacrificed.

This collection of mucus, judging from our literature, is probably very rare, there having been no previous mention made of it so far as we have seen. The temporary frustration of our plans in this way could only have a secondary in-

fluence, tending to annoy and disturb our confidence in the future stages of the operation.

The next and really essential difficulty encountered was the hemorrhage from the excision wound. The removal of the cartilage was performed as carefully as possible, and probably as well as most inexperienced operators could be expected to do at the first attempt. The cartilage came away quite clean, almost wholly free from other tissues, so we are unprepared to say if either through our inexperience or inadequate instruments, we unnecessarily wounded important blood vessels, or if the case was an unusual one in this respect.

The manipulation, application of styptics, etc., necessary to control this hemorrhage, no doubt aggravated the unavoidable inflammation in the wound of excision, and was probably largely responsible for the unfavorable contraction of the cicatrix and consequent narrowing of the superior laryngeal opening, and its further occlusion by the right arytœnoid cartilage being drawn downwards and inwards.

The very marked hypertrophy of the cricoid cartilage, and the consequent constriction of the inferior laryngeal opening, is not so readily explained, for although the same manipulation on account of the hemorrhage may have caused some irritation of this part, it seems very improbable that it could be wholly responsible, and the tampon canula scarcely touching this cartilage can be illy blamed for the pathological change.

The retention of the tampon canula for an unusual length of time was undoubtedly the sole, or at least main cause of the collapse of the tracheal rings involved in the primary incision, as such pathological conditions occasionally follow tracheotomy, and so far as observed, this result has happened only in those cases where, as in this case, a plain incision through the tracheal rings is made for the insertion of the tracheotomy tube instead of removing a sufficient part of the rings to admit it without straining or distorting the involved cartilages.

We have, in this instance, departed from the general rule in recording cases of this operation, which has heretofore

been confined mainly on the one hand, to those cases which have terminated favorably, and which are consequently of little value except as items of news or to sustain Dr. Fleming's position (which scarcely needs it) that roaring can be so cured; and on the other hand, to those cases operated upon by inexperienced persons like myself, which have terminated disastrously, and which, so far as we have seen, are generally devoid of pathological data or interest, and designed only to throw discredit upon the illustrious inventor of the operation, which with careful study promises, in spite of adverse criticism, to accomplish much good.

With the hope, therefore, that in reporting this case, we have in part at least revealed some changes heretofore unnoticed, and perhaps suggested some imperfect means for avoiding them, we feel warranted in recording it as a slight addition to the clinical study of this very interesting operation.

RECTAL EXAMINATION AS AN AID IN A CORRECT DIAGNOSIS OF CERTAIN DISEASES.

By J. M. PHILLIPS, V. S., Wichita, Kan.

A paper read before the Kansas Veterinary Medical Association.

Mr. President and Gentlemen of the Association:—The subject of this article is one to which I have been applying all my odd moments for some months past, hoping to give you something that is very new or interesting about it. The subject itself does not convey to your minds the idea that it would take any deep study on my part to say a few practical things about it, and that is just why I chose it. Not being able to finish a paper I was preparing for this meeting, I laid it aside for the present and in the emergency chose this.

In this paper I am not required to give the pathology or even the treatment of any of the diseases that this subject touches upon. One particular disease in all its phases is subject enough for an essay of varied lengths. Volumes have been written on tuberculosis, pleuro-pneumonia and hog cholera and many other diseases, some the pathology of

which we know but very little about and we know still less about the successful treatment of them. Some have one theory while others have another of the same disease. So we, the veterinarians of the State of Kansas, seeing the room for deep study and investigation in the pathology of them and the medication in the treatment of them, are not going to follow in the old ruts, if there is a better way, nor do we propose to always be nestlings and have everything dropped into our mouths. There can and should be just as much originality and research in the Kansas veterinary surgeon as in those hailing from any other State, if there is not then we are different in our dispositions from every other class of citizens in the State.

When we first leave the college halls we are like young birds just leaving their nests. We are fat with scientific facts that have been crowded into our minds; we know this and that, but not so much from personal experience, for it is limited. In practice we gradually lose the adipose part of our education but the muscular part begins to develop. Our practice is somewhat mechanical at first, but originality "steals upon us like a snowstorm in the night." Original ways, manners, thoughts and ideas are what we are always anxious to read of in our journals as well as to listen to in a gathering like this. I hope we may have some original ideas expressed in the discussion following the reading of this paper.

I venture the assertion that there have many horses died, under the care and treatment of *skillful* veterinary surgeons, animals whose lives might have been spared had the veterinarian taken the precaution earlier in the disease and made a rectal examination.

I admit it is not a pleasant task, as are many of the veterinary duties, but when that is the thing to do, roll up your sleeves and do it cheerfully. As to when it should be done, I will speak later.

The manner of making a rectal examination is important, though the rectum is not such a delicate organ, yet it should be handled very cautiously.

The rectum can first be emptied by an enema of warm

water and soap or by an injection of glycerine; the water is preferable from its not exciting contractions of the bowels; this will allow the hand to enter farther in and their relaxed walls will be more easily manipulated. After the rectum is nicely emptied, the hand and arm should be oiled and gently inserted into it. If it has been thoroughly emptied the arm can be inserted almost full length if necessary. Every movement should be made slowly so as not to wound it or excite contractions of it. In the latter case it will be a hindrance to you in examining those organs that are situated well forward in the abdominal cavity. With the slow gentle movement you give the bowel time to adapt itself to the position required. If you wish to feel the sides of the pelvis, as in a fracture of it, push gently in that direction until the hand comes against it. If you wish to feel the aorta in case of an aneurism, lift the bowel gently up until the hand comes against that pulsating vessel. With the hand once in the rectum many organs can be outlined, especially when they are in a pathological condition or position. The outline of the pelvis, the prostate glands, the urethra, the bladder, the ureters, the kidneys, the aorta and its terminal branches, the vena cava, the double colon and the base of the cœcum, the portions of the small intestines, the internal inguinal rings and the vas deferens in a stallion, and the spleen probably when it is very much enlarged. Not attempting to enumerate all, I probably have omitted some; suffice it to say there are a great many organs that can be reached per rectum.

As to *when* we should examine, is a very important question and one which I will not attempt to answer in a precise manner but only in a general way. Of course I would not advise the practice of it in every case when a horse kicks at or looks around at his belly, but in *all protracted cases of abdominal pain.* If your treatment does not have the desired effect upon your patient, you would naturally make a closer examination. If in this second examination you do not find the cause of the obstinacy, *then make the rectal examination,* feel for the organs that the symptoms might indicate to be affected, and to your surprise sometimes the diagnosis is made very

easily. If it is a protracted case when it comes to you, and you are not thoroughly satisfied as to the cause and you decide to use very active agents (as eserine) from the start, better make the examination first. You could have rupture of the intestines where it might have been avoided; be satisfied that your patient is prepared for such treatment.

Prof. Williams in his "Principles and Practice of Veterinary Medicine," page 554, after describing the symptoms of an animal suffering with an intestinal concretion weighing about ten pounds, which proved fatal, says: "In one case examination per rectum enabled me to feel and remove a calculus from the rectum, the animal being immediately relieved." He further says: "This shows the necessity of such an examination in all cases of abdominal pain."

A list of most of the diseases, as a class, brought before your minds this evening, in which rectal examination is a satisfying means of the proper diagnosis, might surprise you somewhat.

Constipation from the following causes:

Paralysis of large intestines, paralysis of rectum, inflammation in other organs adjacent to rectum, producing an excessive heat in the fæces and also the voidance of passages resulting from the pressure on the inflamed organ, thereby causing pain and as a result the misplacement of some abdominal viscera.

2. Impaction.
3. Colic, with distended bladder.
4. Hæmorrhoids.
5. Rectitis from malpractice or other causes.
6. Pelvic deformities and fractures of certain parts of it.
7. Pelvic abscesses.
8. Deep tumors in the gluteal region.
9. Intestinal concretions.
10. Cystitis,
11. Nephritis.
12. Calculi of bladder, ureters and urethra.
13. Hernia and its reduction by manipulation.
14. Diseased ovaries.
15. Ridglings.

16. Retention of urine, from enlargement of prostate glands, cystitis or urethral calculi, excessive accumulation of fœces in the rectum.

17. Aneurism.

18. It is also claimed that when the spleen is enormously enlarged it can be detected per rectum.

With this list of about twenty different diseases which have been diagnosed, or a diagnosis verified by rectal examination, nearly all of which produce symptoms of abdominal pain, do you wonder at the assertion of Prof. Williams?

The remainder of the time allotted to me this evening I will devote to relating two cases in practice. I shall have to be very brief. The time will not allow me to enter into or relate cases of all the diseases enumerated above, but I must crave your indulgence inasmuch as the few remarks on them are principally of a practical nature and have been put together during a few hours in the evenings of the past few days.

It was several cases of scrotal hernia and two cases of misplacement of the cœcum that Dr. S. E. Phillips and I diagnosed by rectal examination and treated per rectum, that suggested this subject to me.

The first case of misplacement of the cœcum came to us on May 20, 1889. It was a large brown mule about twelve years old. He had been led behind a wagon a distance of about nine miles. His temperature $105\frac{2}{5}^{\circ}$, pulse 100, much prostrated, mucous membranes livid. The owner told us that the mule was taken with colic about eight days ago and he had been running down in flesh ever since, till he began to think he would soon die, so he thought he had better bring him in and see if a horse doctor could do anything for him.

In answer to the question of "What have you given the mule?" He said: "After we got him over the hard spell at the beginning, we saw he was still uneasy and was not having any passages, so we gave him a quart of raw linseed oil and waited twelve hours; then gave him another pint and waited about a day again and gave him a pound of salts, and later on some more salts. When that didn't work we gave some melted

fresh lard." No wonder the mule had a haggard appearance.

We examined the mule and concluded that he was pretty weak to stand an injection of eserine, yet that would be better; with all that oil and salts and lard in him, he would soon succumb, so we gave a hypodermic injection of 1½ grains eserine, which was followed in about thirty minutes by violent straining, with protrusion of the rectum, but no passage of fæces. After the effects of the eserine had passed away, we made a rectal examination. This was hard to accomplish as there was a large distended body filling the pelvic cavity, but lying closer to the right than to the left side. By manipulation it was found to contain gas, and its shape, its muscular bands and its origination from the right illiac region was evidence enough to identify the organ, while its position accounted for the distention.

When once diagnosed the treatment was simple and efficient. It was so large and tense that it could not be pushed ahead and it could not be replaced without surgical interference. With a common trocar and calnula the hand was inserted into the rectum and the trocar plunged through the walls of the rectum and cœcum, allowing the gas to be liberated. The walls of the cœcum had no sooner collapsed than it loosely dropped over the rim of the pelvis into place. A small injection of eserine brought fæces, oil, etc. in a very few minutes. We discharged the mule from our hospital in a few days, looking and feeling much better and having passages as regularly as his mate.

ANOTHER.—On Friday, Nov. 8, 1889, we were called to the Emporia Avenue livery barn to see a brown horse. He was stretched out in a position to pass urine, straining occasionally and passing small quantities of urine. He was quite uneasy, yet not suffering intensely. He was at this time passing some fæces. By questioning the stable men, there was nothing to indicate any symptoms of bowel trouble, but all the symptoms they had seen and all that showed while we were there, were those of the urinary apparatus. Yet to us it was a peculiar case. The temperature was normal, pulse the same, a fair appetite for food and water, yet he was in some

pain and at times very restless. The treatment was directed to relieve pain in particular.

Another visit was made on the 2d, and an examination made per rectum.

The same shaped organ met the hand as in the above case, though not so large. This was filled with hardened fæces.

The treatment in this case was not so easily determined upon as in the mule. He was given a good physic ball and put on light sloppy food. When the bladder became distended so that the pressure of the cœcum with its contents would cause the animal to be uneasy, we would draw the urine and the animal would be quiet again until it refilled. With four days of laxative treatment, the horse resumed his usual work.

THE INDUCTION OF NARCOSIS IN HORSES.

Translated from the German by RICHARD MIDDLETON, A.B., D.V.S., Stuttgart, Germany.

I have, for the purpose of performing operations in our surgical clinics, anæstheticized numerous horses and other large animals. From this experience I am in a position to state that the widely diffused view of the danger accompanying this undertaking is utterly false. Ten years previous I pointed out this error, and at that time considered, in consecutive order, the causes which led to such a view. My late results have only corroborated these statements.

Statistical minutes were made of all these cases, and the length of time until the appearance of insensibility, together with the quantity of the agent used, were exactly noted; in like manner were the race, age, sex and weight of each individual registered. Since I have no knowledge of like statistics, I will therefore place before the profession an average of the cases, and therewith a description of the method.

With one hundred and twenty-six horses narcotized, (thirty-one stallions, thirty-eight mares, fifty-seven geldings), it required on an average, twenty minutes up to the period of cessation of corneal reflex before complete unconsciousness appeared, and three and one-half ounces of chloroform, or six

and one-half drachms for every two hundred and twenty pounds; this narcosis lasted about twenty minutes. In foals from one to two years old, three and three-quarters to five drachms were sufficient in eight minutes to effect the narcosis; the shortest space of time this lasted, was in one case eight minutes, one nine minutes and two ten minutes. A four-year-old gelding was narcotized in seven minutes by one ounce of chloroform. In twelve cases of the one hundred and twenty-six, one-half hour was necessary; in four cases from thirty to forty minutes were requisite to induce the narcosis. With stallions this appeared in eighteen minutes, with mares in nineteen minutes and with geldings in twenty-two minutes: further, the stallions needed three and one-third ounces, mares three and and one-quarter ounces and geldings three ounces of chloroform respectively. In seven cases, (three stallions, two mares, two geldings) the effect was induced by one and one-half ounces, and opposite to this, eighteen cases, (five stallions, four mares, nine geldings) required over four and one-half ounces. In one gelding seven and one-half ounces were used, and in one English thoroughbred seven and two-fifths ounces. The average age of the stallions was five, the mares nine, and the geldings seven years.

It was noticed that the quantity of the chloroform needed depended upon the method of applying. (There was no essential difference between the English and German chloroform). Less chloroform was used when slowly administered and when mixed with warm air, than when rapidly given; the quantity of this agent used can be said to stand in inverse proportion to the length of time occupied before the desired influence is brought about. The race of the patient exercised little, if any influence upon the quantity used or the time necessary to produce unconsciousness; but geldings consumed more than stallions or mares.

In twenty-eight cases, seven and one-half grains of morphine were injected previous to the inhalation, and in these three ounces and fifteen minutes were consumed in securing narcosis. Also in eight cases, the latter was produced by a

mixture of equal parts of chloroform and ether, and of this six and one-half ounces, and one-half hour were consumed before insensibility. One ass consumed in fourteen minutes one and one-quarter ounces, four male goats and three sheep four and one-third drachms of chloroform in six minutes. In all, I have effected anæsthesia by inhalation in more than two hundred cases; *in not a single case were there detrimental results of any kind; not one death; not a single uncomfortable consequence.*

When morphine was previously given, the patients developed unquietness and gave more or less trouble, which was not the case when chloroform exclusively or chloroform and ether were given. It is easy to comprehend that in some operations this struggling amounts to a serious consideration. The dose of morphine has only an inconsiderable effect upon the patient; neither the time nor the quantity of the means is materially lessened; I never use morphine. The mixture of ether with the chloroform, recommended on so many sides, requires more time, and with this more material also; this, together with the later innovations, are not to be recommended. Instead of the commonly used sponge, which hinders to a considerable degree the current of inspired air, I use a cloth of flannel eight inches square.

After the animal is thrown, there is but one nostril visible; over this the last named flannel cloth is placed, and chloroform dropped upon it, directly over the nostril, at the rate of twenty to thirty drops in ten minutes; an interim of ten minutes is now taken, and then again follows the dropping (preferably in a burette glass). Every two or three minutes the nasal cavity is sponged out; this must also be done when the cloth is wet through, either from carelessness or otherwise. The object of this is to remove any chloroform lying upon the schneiderian membrane, and so preserve the latter from the caustic effect of this medicament, (for this reason is the flannel preferred to the old method of sponges which are wet with the liquid and laid directly upon the mucous membrane). Care must be taken that during the inhalation the under nostril remains open.

There are other necessary precautions to be taken, after the horse is upon the ground. The girth is loosened or entirely dispensed with and the assistants must be instructed not to sit upon the chest, although they may take a position upon the region of the gluteal muscles when occasion requires; in other words, the respiration must remain absolutely free. During the administration, the pulse must be noted, together with the respirations; these at first are increased, but soon return to normal, the inhalation, however, is to be suspended upon irregularity of breathing, and when the character of the pulse betokens a weak heart. In a single case I observed general muscular twitchings (clonic spasms) which also caused me to cease the chloroform. A stage of excitement is exhib ited by some horses, but with the generality it is seldom or never seen; it is manifested by neighing and struggling in the hobbles; it lasts generally only a minute, and is followed by the stage of depression.

Many horses close the eyes shortly after the inhalation is commenced, and a rolling of the same is also sometimes noticed, a short period of nystagmus. With the diminution of consciousness and irritability, the animal usually reopens the eyes, or more properly, the lids involuntarily part. From the fact that even before full unconsciousness, many patients fail to show irritability of the eye when the cornea is touched, I find it of little advantage to use the corneal reflex to determine when the administration of the anæsthetic should cease.

The rattling in the throat, which when occurring in man, demands immediate attention, is not, in our patients so imminently serious. It is produced by the vibrations of the velum pendulum palati consequent upon the efforts of the animal to respire through the mouth; to avoid this the tongue is held outside the mouth at the commissure; should consciousness return or manifest evidences of returning, the chloroform is re-applied; when full narcosis is once induced, it remains about twenty minutes after the removal of the inhalation ap paratus.

I have held subjects under complete narcosis for from one to two hours by simply reapplying the flannel, etc,, as soon as

irritability is manifested. After the completion of the operation, the hobbles are removed, but the patient is allowed to lie as long as he does not manifest any desire to rise; when compelled to stand, the gait is unsteady, and it is much safer to station a man at the tail who should be instructed to steady the motions of the body, and prevent a probable headlong fall.

In long lasting and deep narcosis, the movement of respiration ceases generally while the patient is in a dazed condition, and after the operation is ended. This causes great alarm among those unacquainted with the course of such cases. The synchronous movements of the chest are re-established by a sharp, stinging blow with the palm of the hand upon the wall of the thoracic cavity; in this manner I have returned the movements in one-half to three-quarters of a minute after they had ceased. With the modern apparatus of Fohringer a saving of chloroform is secured; the time, however, is longer than by the method herein described.

The intravenal injection of chloral hydrate and the intrarectal application of ether are not to be recommended for the purpose of anæsthesia. In the first there is much difficulty in fixing the dose, and a venous thrombus from the wound of the injection is by no means precluded. Moreover, the narcosis so induced, passes rapidly away and cannot be relied upon. In an old experimental case, I saw death ensue from apnœa brought on by administering one and one-half ounces of chloral hydrate.

The intrarectal ether injection produces only after a long time, a very incomplete and unreliable anæsthesia. The effort to use bromäthyl as an anæsthetic was not successful, from the fact that this agent froze during the administration and therefrom was irrespirable. The method of gradually dropping the chloroform upon a flannel cloth placed over the nostril can be recommended when narcosis is needed. It is possible with horses as with men, that individual idiosyncrasies may cause the application to be dangerous; in general there is very little danger associated when carried out as herein stated.

LYMPH EXTRAVASATE IN POSTERIOR LIMBS OF EQUIDÆ.

Translated from an article by Prof. Hoffman in the *Monatsheft fur Thierheilkunde*, by RICHARD MIDDLETON, A.B., D.V.S. Stuttgart, Germany.

Quite in the same manner as the traumatic collection of blood originates, does the collection of serous fluid originate, which is at times seen upon one or other of the posterior limbs, more frequently in horses. Cases of such extravasate have been reported in cows and upon the ears of dogs. The swellings do not arise from the oozing of lymph through the lymph spaces in the fibrous tissue, or from the physiological foramina in the vessels themselves; but from a rupture of the latter, a lymphorrhagia is established, and according to the laws of gravity the liquid collects at some inferior point. These tumors are not infrequently diagnosed as hæmatomæ, but when the surgeon opens them he is surprised to find not blood, but a transparent yellowish, or perhaps, reddish fluid. In human medicine, Gussenbauer, writing upon traumatic injuries, rehearses cases of "blood extravasate," in which not blood but serum were found; the coagulum which should have been present, upon this hypothesis, was considered to have been absorbed, and that the hæmaglobin of the escaped corpuscles had imparted the red color which was occasionally seen.

The first description of this species of swelling was written by the French surgeons, Velpeau and Moret-Lamottée. It was soon noticed that the tumors arose from, as a rule, one kind of injury; to wit, a severe obliquely delivered blow on such regions of the anatomy in which fascia was present. In twelve cases recorded in man, seven were caused by a wheel passing over the spot; the remaining five were caused by blows tangentially received.

Pathology: There must occur "a gliding of the superficial portion of the region, upon the solider underlying parts," through which the skin is not only torn from the subjacent muscles, but the still deeper tissues are compressed.

Diagnosis: Directly after the infliction of such a wound as the above mentioned agents cause, there arises a swell-

ing which at first does not manifest the general characters of an inflammatory production, and which gradually and continually enlarges (extending over a few days or even weeks).

The contents of the cavity remain, under all conditions, in a fluid state, with not the smallest formation of coagulum, so long as the atmosphere does not reach the interior. The tumor yields upon palpation and succussion—unequivocal proof that the bulk is fluid. The skin over the swelling is not painful. Blood constituents are either not at all present, or only so in inconsiderable quantities, and the chemical composition is similar to that of blood serum and lymph. After the evacuation, the serosity continues to flow from the fact that the torn lymph vessels are not occluded as the blood vessels are after the opening of an hæmatoma; as a consequence, the course of the former is more tedious and dangerous than the latter.

When not incised, the contents seek a spontaneous opening, and frequently in earlier days caused death to those persons so afflicted by the extensive suppuration.

The therapy consists of first stopping the lymphorrhagia, and second, causing the resorption of the liquid. It is proposed to use compresses, bathing in warm water, or poultice with a mixture of alumen and plumbum acetatum, puncture, iodine injections, antiseptic operation; without incising one cannot expect a favorable result.

In the *Deutschen Zeitschrift fur Chirurgie*, 1888, p. 344, the disease is considered under the name "decollement traumatique;" the author states that the condition up to the present time has been little considered. He distinguishes (*a*) superficial (*b*) deep varieties. In the former the skin is separated from the underlying fascia, and the pocket so made is partly filled with extravasate, but never completely so. The deeper sort has its seat either between the fascia and muscles, between the muscles, between the latter and periosteum, or between the periosteum and bone; it can appear without being in conjunction with the superficial variety. The size of the cavity varies as well as the appearance of its interior, which may be smooth, or show threads which bind it to the connec-

tive tissue. The etiology is essentially the same as previously described (which was written in 1880). Doubt respecting diagnosis can hardly be entertained, when these symptoms and history are considered; at first the small size, however, may be a factor of indecision, but from the character of continually increasing, this is not a permanent hindrance. The principal diagnostic sign is the latter history, together with the fact that the cavity is never completely filled. By gently tapping the swelling with the finger, a species of quivering is established. Shortly after the separation the skin loses its elasticity and sensibility, and since its blood supply has been perceptibly diminished, it is predisposed to gangrene. In general the prognosis is favorable if the case comes under correct handling. Suppuration seldom appears, but when a portion of the skin becomes gangrenous and falls away, then the process is a protracted one and tedious. The therapy consists in energetic surgery; in small enlargements elastic bandages generally succeed in eight or ten days. In the most cases, broad incision, antiseptic washing and bandaging alone succeed. The following is an account of a typical case. Horse used for riding purposes; in the afternoon a swelling the size of one's hand was observed, which towards evening became larger and caused the owner to send the animal to the college.

Status præsens: The general health is good, no pyrexia or lameness, but the wounded limb somewhat extended forward. On the exterior of the right thigh is to be seen a swelling one inch high, and extending over a space as large as a medium sized dinner plate; the swelling is not uniform, but bags inferiorly, giving a more bulging appearance to this portion; the same is soft and fluctuating, and upon the skin no wound or loss of hair is visible. The history developed the fact that while being brought to the riding floor, the patient had slipped and afterward slid some distance, but immediately rose to his feet, and shortly after went through with his exercise; nothing abnormal was observed until afternoon. Upon first seeing the subject my opinion was that the collection proceeded from a large blood vessel, and therefore declined to incise it, but ordered cold fomentations. Through the canula

of an exploring needle there flowed a reddish serous liquid, and upon enlarging the incision, from thirty-two to forty-eight ounces of the same were liberated. After a few days suppuration appeared, a portion of the skin became gangrenous, febrile symptoms complicated the case and healing lasted several weeks. I have observed a few similar cases, having the wound upon the same region and showing the same history; with these I have applied a very different and more successful therapy. The hair is first clipped over the swelling and at the most dependent portion is shaved; after fundamental disinfection, the incision is made at the shaven portion, and a short and thick drainage tube sewed in. The latter tube is made continuous with the epidermis by iodoform collodion, and at the end of the tube a ring of cotton is fastened by the same means, in this way seeking to avoid infection of and continual wetting of the skin by the dropping fluid. The loose skin is now sewed fast to the underlying tissues by deep perpendicular stitches, and afterward coating the whole sheared surface with cantharidine collodion or other counter-irritant completes the therapy. Care is taken that the patient does not rub the part; and further, no oats are to be given, every other day a small portion of water. On the eleventh day the drainage tube and threads were removed, and on the seventeenth day the horse was put to the saddle.

Resume: From the foregoing foundation, borrowed from human medicine, and upon the ground of cases related and observed, I believe I am justified in stating the following: Lymph extravasate, lymphorrhagia or décollement traumatique occurs in the domestic animals as well as in the human species. Its causes are: a fall and subsequent sliding; being struck with the pole or shaft in a tangential or oblique manner; during copulation from the motion of the anterior limbs upon the spinal region of the female; from the rubbing or striking of the body in going through a narrow doorway. Concerning the therapy; setons are held as dangerous; all fragments of torn tissue are to be removed by injections of caustic astringent solutions of the following: zincum chlor. 10 per cent.; ac. phenicum, 10 per cent.; hydrarg. chlor. corros.

2 per cent.; creoline, 50 per cent. At the same time the general health must be allowed to suffer on account of the local indisposition.

CREOLIN.

By Professor Dr. Frohner, Director of the Pharmacological Institute of the Royal Veterinary College in Berlin.

[*Translated from the German.*]

Under the name of Creolin the firm of Messrs. William Pearson and Co., of Hamburg, have brought before the notice of several German institutes and corporations a new disinfectant and antiseptic. I must candidly confess that with a daily increasing mass of new medicines I have only entered with very great reserve on a thorough examination of this material from a chemical and pharmacological point of view. An examination of three months has, however, shown that creolin may be looked upon as quite a material enrichment of our medicine chest. According to the information of the above firm, creolin is a product of dry distillation of coal, and indeed of a peculiar description of English coal. From these distillations of coal creolin is prepared by the addition of alkali in suitable and proportionate degrees. As regards the further chemical composition no details have been given by the firm, as the material has been for years patented in England. However, it is said to be a constant chemical substance.

The material produces a blackish, syrupy, pungent and tar-smelling liquid, which is packed in tins of 5 kilos. each. It is miscible with water in all proportions. The solution forms a milky emulsion. It dissolves also in alcohol. Besides the pure creolin and its solution in water and alcohol, there were also submitted for examination hard and soft creolin soaps, and also creolin powder for the disinfection of rooms, dens, etc. As a net result of my experiments with this material, it has been shown that creolin is non-poisonous, both volatile and permanent, and is a very cheap antiseptic. It belongs to our best disinfectants, and is in general to be preferred to carbolic acid. I have examined creolin according to the following particulars:

1. As an antiparasitic for epizoa. Of all ectoparasites the mites of scab, especially of the class of sarcoptes, are the most difficult to destroy. The importance of these parasites as regards national economy is most apparent in scab of sheep (*Dermatodectes ovis*) which alone causes Germany a loss of several millions of marks every year (thus in 1884 nearly 250,000 sheep were found to be infected in Germany alone). In the dog likewise, mange, due to the presence of sarcoptes, also causes extensive losses. Of the animals brought to the Hospital of Dogs in the Berlin Veterinary School during the year 1886–1887 no less then 639 of the whole number (8,399 in all) were found to be suffering from this malady, or, in other words, over seven per cent. of all dog diseases in Berlin come under this heading. The remedies usually applied for mange are carbolic acid, arsenic, corrosive sublimate, tobacco, and balsam of Peru, besides alkaline medicaments. The last, as also the first three, are violent poisons, and a large number of mangy dogs yearly succumb to the effects of treatment with them. A cheap substance equalling carbolic acid in its action, without being possessed of its poisonous properties, would therefore be considered the *beau ideal* of a remedy for mange. To all appearances it has been found in creolin. In none of my numerous experiments was there the least trace of toxical (*i. e.* poisonous) symptoms to be observed. The dogs experimented on received at first 1 gramme (=15.432 grains), then two, five and eventually fifty grammes of pure, undiluted creolin internally, without evincing the slightest change in their general state of health. The same result was observed in horses similarly treated. This proves that neither when absorbed through the skin, nor even if licked off by the animals themselves, does creolin exert any detrimental effects. In order to draw comparisons between the results achieved by balsam of Peru and the effect produced by creolin, I caused six dogs affected with this malady to be inuncted on one-half of their body with the former, on the other half with the latter medicament. The effect of both seemed the same. But whereas the expense of treating a dog with balsam of Peru was 10 marks (ten shillings), the cure was effected by means

of creolin for 50 pfennige (sixpence). Besides, balsam of Peru exercises toxical influence on some animals, for instance on cats. For these reasons we feel justified in most warmly recommending creolin for the treatment of mange, and also especially for scab, in which disease it has for many years been employed in England, Australia, the Cape, New Zealand, and South America with most exceptionally excellent results. As regards the manner of administering creolin, I have applied it both in aqueous, as also in alcoholic solution (from 1 to 30 per cent.), and also in combination with soap (2 to 10 per cent). A mixture of 1 to 3 per cent. either with water, alcohol or soap, would seem to suffice in all cases.

2. As an antiseptic, creolin is used in the place of the usual 3 per cent. solution of carbolic acid and the one-tenth per cent. solution of corrosive sublimate. I have used it in aqueous solution, in the strength of 1 to 5 per cent. in various ways for operations, in wounds, cavities of abscesses, necrosis of bone, severe inflammation of skin, etc. A 3 per cent. solution of creolin has been shown by these experiments to be in all respects at least equal to a 3 per cent. solution of carbolic acid, or a one-tenth per cent. solution of corrosive sublimate. At the same time this substance is perfectly devoid of toxical properties, and can be applied to very extensive wounds for a long time without any danger.

3. In chronic eczema of non-parasitic origin, creolin produces the same beneficial effect as tar, without the objection of being poisonous. In this respect I should like to point out that creolin exhibits much similarity with the "so-called" "oleum carbonis detergens," which was sold as a secret preparation in England some years ago, and which most excellent remedy I at first had believed to be identical with creolin.

4. As an inhalation I have found creolin useful in 1 per cent. solution for infectious bronchitis and broncho-pneumonia, especially in epidemics. It produces the same satisfactory results as carbolic acid, but without its relaxing influence.

5. As a disinfectant for dog-kennels and stables, for cages and utensils, I prefer creolin, on the strength of my own experience, to carbolic acid. Its volatility gives it an advan-

tage over corrosive sublimate. I have made use of creolin in the shape of a 1 per cent. aqueous solution, as also as a disinfecting powder, in which form also it is sent abroad.

6. I have finally administered creolin internally with very good results. It is given in doses of one to two grammes in a 1 per cent. aqueous solution in cases of gastric and intestinal catarrh caused by infectious or zymotic agents. In a number of cases the results were quite astonishing. Creolin is indubitably infinitely preferable in such diseases to creosote, subnitrate of bismuth, tincture of iodine and naphthaline.

SAINBEL, HIS LIFE AND WORK.

By T. B. ROGERS, D.V.S., Woodbury, N. J.

I have before me an old book, "Elements of the Veterinary Art," by Chas. Vial De Sainbel, late equerry to the King and professor in the veterinary college, to which is affixed a short account of his life. The book was printed in London in 1797. As the book is about to pass from my possession and find its most fitting resting-place in the library of Professor Liautard, the thought occurs that a short sketch of the life and times of the founder of veterinary medicine in England would be of interest to the readers of the REVIEW.

Sainbel was born at Lyons, January 28th, 1753. At that time his father was Mayor of the city and a person of good birth and importance. He early exhibited his bent toward the veterinary art, and through the kindness of his guardian, Monor de Flesseille, was enabled to pass the curriculum of the Lyons school where he was a teacher. Hence to Alfort as a junior professor. At Alfort he incurred the enmity of Chabert and Bourgelat, and a copy of a letter from the latter, found after Sainbel's death among his papers shows that a conspiracy was meditated against him, the Bastille being suggested as "the dernier theatre demonstratif" of Mons. our petit professeur en second.

The times were troubleous; no man knew how long his

head was safe on his shoulders, and probably concluding that absence of his body from Paris was better than the presence of mind needed to keep his head and neck connected if he stayed there, he resigned and returned to Lyons.

His next appointment was that of Demonstrator of Comparative Anatomy at Montpelier, where he stayed for five years. Again we find him in Paris as equerry to Louis XVI., endeavoring to regain his place in the Alfort school, but the effort being vain, he visits England in 1788; marries; again revisits France at the outbreak of the Revolution, but finding the times unsafe, he obtains leave to go again to England on pretence of buying horses for his patron's stud. The second head to fall into the basket was that of his good friend, Mons. Flesseille, so Sainbel lost friend and annuity together, and his patrimonial estate was confiscated. His fortunes were advanced in his adopted country by his skillful dissection of Eclipse, and his plans for the establishment of a veterinary school were discussed and adopted on the 11th of February, 1791. The President of the school was the Duke of Northumberland, and one of the Vice-Presidents was the eminent English surgeon John Hunter. On March 22d it was resolved that a *temporary* stabling for fifty horses and a forge house for shoeing should be built at St. Pancras.

The new enterprise was doing well and the future looked bright for its founder, when on Sunday, August 4th, 1793, Sainbel laid aside the scalpel for ever, and on August 21st, 1793, the founder of the London school passed away in his fortieth year. He was buried at the expense of the college in the little Savoy chapel in the Strand. Looking through his book one is struck with the grasp the man had on all parts of his profession; he was thorough. His preliminary discourse was a brillant resumé on the progress of his art from the days of Chiron the Thessolian to the establishment of the schools of his own land. His lectures on Farriery are instructive reading to-day. The description of the high operation for quittor is most excellent, and it is interesting to note that he used the dressing of tinct. aloes and myrrh as many of us do to-day. His essay on grease has interest, in that it describes

a condition of things that has nearly passed away under the improved hygiene of our times.

In his essay on glanders he tells us that all his experiments lead him to the blind alley of incurability. Closing the book with its quaint though well executed plates, its wide margins and good letter press, we ask ourselves what would have been the present condition of veterinary medicine in England had Sainbel lived to a green old age. It would have stood on a much higher plane, for looking back at the work of the school since his day, we are obliged to admit that his successor has never arisen. There have been professors and professors, but only one Sainbel.

Note, however, that the seeds of veterinary medicine in the United States were also planted by one of Sainbel's compatriots. We owe more to him than did the English school to Sainbel. Fortunately, Providence has permitted him to watch the ripening of the seed he has sown, and it is doubtless the heartfelt wish of all of us that he will long stay to watch the garnering of the crop.

BLACK LEG.

GASEOUS CHARBON, SYMPTOMATIC ANTHRAX, BACTERIAN ANTHRAX.*

By Dr. P. Paquin, Columbia, Mo.

INTRODUCTION.

This malady causes the death of many thousand calves and young cattle yearly in our State, and it would be difficult to estimate the total annual loss in America. From all accounts, however, it seems that there is not a State in the Union free from it. One can scarcely read an agricultural paper without finding something about it. In Missouri, every monthly report to the Board of Agriculture, coming from farmers in every quarter of the State, furnish ample evidence of its extensive devastation and the powerless condition in which farmers and stockmen find themselves. In the hope of rendering some service to the State, we undertook the study

*Bulletin No. 12, Agricultural College Experimental Station.

of that disease, as far as our time permitted, (having under way, besides the regular official sanitary work, a programme to follow concerning investigations in Texas fever, the results of which have just been published in bulletin No. 11).

We did not intend to publish anything now, but we yield to the farmers' demand for information.

Unlike Texas fever, which was misunderstood everywhere, we found in black leg a malady fairly well understood, and hence to attain our object it was not necessary to lay a plan of investigation entirely original.

The extensive experiments and researches of Arloing, Cornevin, Thomas, Chauveau, and others in France have furnished us much material for comparative study, and finding that the disease in question is identical in Europe and America, we quote considerably from the above named authorities for the benefit of our people. As will be shown in this bulletin, we owe much to these scientists for their grand achievements, for to them, besides being indebted for the many scientific problems which they have solved, we owe the process of vaccination against black leg, which to-day saves millions of dollars to France, Switzerland and other European countries, and would save our stock raisers on an equal basis if they would only put the discovery in practice.

NATURE, CAUSE, SYMPTOMS AND LESIONS.

Black leg is a disease due to parasitic bacteria (or germs) which exist in certain localities, particularly low lands and luxurious grasses, and which when in the body of young cattle grow principally in the connective tissue (between the skin and flesh) and in the muscles, causing the appearance of dark, bloody, gaseous tumors.

The adult germ is of the rod form with roundish extremities. The parasite gains access in the body with the food by the alimentary canal. They penetrate from the bowels, like the absorbed nourishment, in various parts of the body, but localize chiefly under the skin in the loose connective tissue about the shoulders, hips, etc., where they find soils fit for their growth and reproduction. It is a disease of cattle almost exclusively, and like other germ disease, the suscepti-

ble animal, and particularly the well fed young calves, are simply the fields in which the parasites develop, generate and thus cause disturbance in the system.

The disease is not transmitted by contact, but is inoculable directly, as will be seen further.

The *nature* of this disease then is: A *specific, infectious* malady, contracted by young cattle on infectious grounds and other infectious places, and the essential cause is a germ.

As to the symptoms and lesions I shall mention only the characteristic ones, which are fever, lameness, and local swellings or black muscular tumors with formation of gas therein. The ordinary observer may notice the last named symptoms and lesions only.

As a rule the proprietor is surprised one morning, to find among his herd of cattle, his best, fattest calf, or yearling or two-year old dead. The body is already swelled to enormous proportions, and there seems no clue to the cause of such rapid destruction. On examination he finds on the body a local place more enlarged than the rest, and in cutting into it the flesh is found dark and even black as tar. The hand passed over the skin covering this enlargement, causes a crackling or crepitating noise much as the crumpling of paper in the hand; the knife causes a screeching sound in passing through the mass. These peculiar sounds are due to the gas generated by the germs growing in the tissues. Exposed to the air a little while, the dark and apparently bruised flesh regains its natural red color more or less, but not its natural *condition* in full.

In the tissues so abnormal at the time, may be found the germs of black leg.

Perhaps that for a couple of days there will be no more trouble, and the proprietor then will feel secure, but on the other hand as he watches, he may notice a subject more or less lame, in a fore leg or in a hind leg, and soon dullness will be appreciable.

On close inspection and hand examination the crepitation, if not the swelling, will be detected. From this moment it will not be long as a rule that the enlargement will be marked, and probably death will have gathered the patient, for very

few escape, even with the best treatment, when once the germs have caused much disturbance in the organs. In opening the body the intestines will be found more or less reddened, congestioned and thickened. The liver and spleen, which in essential charbon (or anthrax), and in Texas fever are gorged and softened, offer *little* if any change, although they contain the germs. The disease runs its course in a few hours to a few days. It is not uncommon to see demise within twenty-four hours of the appearance of the first external signs. Consequently medicinal treatment is scarcely practicable even if there were any remedies capable of positive service as curative agent. We have, therefore, to institute such practice among our herds as will prevent the occurrence of the plague, just as people take means to avoid small pox and the like. It is only on the line of prevention that we can fight maladies *not* amenable to curative treatment, and even these had better be guarded against and prevented.

THE GERM OF SYMPTOMATIC ANTHRAX.

The microscopic parasite that causes the lesions and phenomenon known as a whole under the common term of black leg, is in the adult state in the tissues, a short rod with rounded extremities. On blood serum, nutritive gelatine, and vegetable albumen artificially prepared, it forms filaments composed of rods and other forms more or less spherical. The germs may be found in the bloody effusion that forms the characteristic tumor of black leg, in the tissues of that swelling, the liver, spleen, kidneys, lymphatic glands and the lungs. It propagates itself by fission and by spore formation, *i. e.* by the rods breaking off into shorter ones and by formation of seeds.

INOCULABILITY OF BLACK LEG.

The many opinions that have been formed concerning the cause of this affection, principally by those who have suffered through it, are so numerous and varied that it would be idle to attempt to disabuse the minds in error, by exposing the fallacies of each theory. Desiring only to give facts, the truth pure and simple, I herewith present evidence as to the causative agent.

One is apt to consider such obscure maladies as black leg as more or less impenetrable mysteries, and yet a few well

directed researches and experiments, in these days of scientific progress, are often sufficient to elucidate the most obscure point or question. Black leg, however, has been much studied in Europe. Indeed the veterinarians already mentioned (of the Veterinary School of Lyons) have long and patiently experimented (to the great good of the whole world). They have shown beyond all doubt, that it is specific and transmissible. Their inoculations from cattle to cattle, cattle to sheep, and to rabbits are conclusive. And yet, with all that, most of people on this continent have doubted to this day. Perhaps we are to blame for that, for our stockmen and farmers have not been informed widely, as was done in Europe, at government expense.

In order to lay the matter clearly before the masses, we made a few experiments. First, we too inoculated cattle from cattle, then sheep from cattle, rabbits from cattle and rabbits from rabbits, and though some writers have denied until now the transmissibility of the disease by inoculation, we have repeatedly succeeded in accomplishing it with serious or deadly results.

My first inoculations were made early in 1887, when filtered, fresh and unmodified fluid of a crushed piece of flesh from a black leg tumor was inoculated to four rabbits with fatal effects in two, and in one heifer with the effect of causing a characteristic tumor and lameness.

In examining the lesions of each sick inoculated animal, they presented the specific appearances of black leg, and the microscope revealed the true germs that produce it.

These limited experiments were certainly in line with the published reports of the French investigators.

Later the same year, I caused the practice of inoculation of *unmitigated* fluid from a liver, with the production of the characteristic tumor with fatal results in two calves five and seven months old respectively. This only confirmed former conclusions.

These spasmodic experiments could not be made of immediate practical use. Without assistance I had to travel officially almost constantly, and methodical laboratory work was almost entirely out of the question.

Late in 1889, however, we had occasion to test again the transmission of black leg and protective inoculation with a *modified* virus.

The following short table gives the results of some of our latest inoculations practiced with very strong virus taken fresh from typical tumors, or from livers or lymph glands of diseased subjects.

TABLE OF SOME INOCULATIONS OF BLACK LEG IN 1890.

Date of Inoculation 1890.	*Case and Mark.*	*Average temperature within 5 days.**	*Results and Remarks.*
Jan. 28	Roan Heifer.	103° F.	Produced crepitation and severe lameness for some days; recov'd.
" "	One Sheep.	103 1-5	Severe pain and enlargement with crepitation at point of inoculation; lameness quite pronounced; recovered.
" 31	Heifer No. 4 in stable.	103 1-2	Virus apparently weak, but caused characteristic swelling of black leg; recovered.
" "	Sheep in shed.	.....	Very lame; characteristic tumor of black leg in the thigh.
" "	Rabbitt in cage No. 10.	.....	Crepitation of side at point of inoculation; recovered.
Feb. 2	Heifer at Paquin's House.	105	Charateristic tumor at shoulder; died of true black leg.
" 13	Small calf in lot.	102 4-5	Other signs than fever accidentally omitted in the record book.
" "	Sheep.	.....	Typical case of black leg. Found dying and killed purposely.
April 1	Rabbit, marked in left ear.	.....	Died of black leg on the 4th of April.
" 20	Sheep.	.....	Had been inoculated once before and recovered. Showed no illness this time.

In all cases in which death occurred or in which the inoculated subjects were killed purposely, the germs of black leg were found in abundance in the loose tissues between the muscles and their fibres, in the liver, spleen and other organs.

*The average normal temperature of cattle is between 100 deg. and 101 deg. F.

PREVENTIVE AND CURATIVE TREATMENTS.

As mentioned, the truly rational treatment of black leg is one calculated to prevent it, but, of course, it will break out here and there unexpectedly, in new places where the germs exist unknown to the people, in spite of any and all precautions unless it be inoculation. Therefore it does become necessary to attempt to limit outbreaks after their appearance, if one is so unfortunate as to be a sufferer thereby.

The first thing to do in the case of black leg is to *remove at once from the place* where the malady started, all the stock showing *no sign* of the disease and *leave the sick ones there.* Place the apparently well ones on higher and dryer lands if possible, or in a yard, or open, well-ventilated stable, and feed them dry fodder for a week or so and give them plenty of good, clear water—not filthy, stagnant pond or pool water.

During that period if you can procure black leg *vaccine* properly prepared, inoculate every subject twice, *i. e.* at six or eight days interval, and then nearly all, if not absolutely all, will be in a position to resist the germs of black leg, no matter where exposed and where they may find them.*

On the belief that only the fattest and best conditioned calves or young cattle become affected, it has been suggested that a treatment calculated to impoverish the system would in a measure prevent black leg. It is partly on this basis that a change of pasture to a poorer one is recommended, and partly because by such practice the animals may be excluded from infectious soil. But on the same principle of impoverishment, the use of setons, or so-called rowels, has been prescribed. It causes copious suppuration and thereby a drain is established on the vital elements of the body. This, by the way, may not sound scientific enough for some of the standing authorities; nevertheless, there is some reason in it, and seemingly, some good results from such practice are not exceptional.

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*Any man of ordinary intelligence can safely practice this vaccination or inoculation. All that is necessary is good virus and a hypodermic syringe.

P. P.

A seton is inserted in the following manner: With the left hand pull a flap of skin of the dewlap (or brisket) down as far as possible, then with a sharp knife make a hole through the skin, i. e. from one side until the point of the blade appears on the opposite side of the flap, then insert a two or three inch wide tape or a good sized string in the incision. When a seton is in place it bears the same relation to the skin that a thread passed through a fold of cloth bears to that fold. Knots are made at each end, or the ends are so tied together as to prevent the string from pulling out. A little liquor ammonia or corrosive sublimate on the string or tape will increase suppuration. The seton should be pulled to and fro once or twice a week at least.

As to medicinal treatments, experiments with mercurial preparations, carbolic acid, mineral acids, iron and copper preparations, sulphurated agents, and various antiseptics have failed. I have tried also several "sure cures" and specifics (?) recommended, for the purpose of satisfying the demands of the people and the claims of the manufacturers, but I have failed with all. Pure salt and sulphur, limewater, etc., etc., are, so far as our experience goes, of little if any value as curative medicines. We shall experiment this year with a line of new and untried drugs.

Yet there are cases in which it is desirable to attempt a cure even though chances are much against success. This is particularly true in very valuable animals found ill at an early hour, or in slow, dragging cases. In these I have found the following treatment the most beneficial of all that I have tried, though it is seldom indeed that recovery occurs with even that.

* Place the animal in a lot, yard or stable, empty the bowels, and activate all the secretions, particularly the urine, in order to favor the expulsion of the poisonous germs and of their products from the body. To attain this object give 10 grains to three drams of calomel mixed in a little oil, say 12 ounces of raw linseed oil or castor oil, every three or four

* This for cattle five months to two years old.

hours; and three times a day add ten grains to one dram of powdered nux vomica to this dose. Give early and occasionally thereafter, injections of quarts, and indeed gallons, of warm water in the bowels; follow these medicines in forty-eight hours with one quarter to one pound of epsom salts if the bowels are not already loose. The kidneys may be activated by the use of pulverized nitrate of potash at about teaspoonful doses four times a day. This may be mixed with the above oil emulsion. These combinations of oil, calomel, powdered nux vomica and nitrate of potash are not very scientific, but they are safe enough and they avoid the trouble of frequent dosing, and prevent the worrying of the subjects. Besides that may be given quinine at dram doses, or antipyrine in half these quantities three or four times daily. These are good to counteract the fever. Antipyrine is exceedingly costly, however.

The remedy for the evil is preventive inoculation early. See special artical further on this point. If this were practiced by every farmer, almost every animal so protected would resist.

BLACK LEG AND CHARBON.

Differentiation.—As we occasionally have charbon in this * State, and as people unacquainted with veterinary science may occasionally confound the two diseases, it is perhaps well to explain the most marked differences.

In the first place, black leg, in the natural course of things is a disease of *young cattle* I may say exclusively, although it be *inoculated* to sheep, rabbits, etc.; and named *Bacterium Chauvei*‡. Other names for black leg are symptomatic anthrax, quarter-ill, emphysematous or gaseous anthrax.

Charbon is a disease of horses, mules, cattle, sheep, etc., etc., and even man, It is due to a germ named *bacillus anthracis* which differs radically from the germ of black-leg in its

* We have not charbon in Missouri anything like the States of Mississippi, Louisiana and California. It is unfortunate for the people, that in those States, the difference between charbon and black leg have not been laid clearly before them, and have been confounded.

‡ A scientific term for the germ of black leg is clostridium.

preference in vegetation, etc. Charbon is referred to sometimes simply as anthrax or as essential anthrax, and in man as malignant pustule.

In black leg the *most characteristic* and striking signs are the pronounced gaseous black tumors about the shoulders or hips, limbs, neck, back, etc., etc. The *liver* and *spleen*, with the exception of a discoloration which is often the result of changes after death, are about *unchanged* in their volume and consistency.

In charbon these *pronounced gaseous tumors* are absent, although there are *occasionally* enlargements about the tongue, or throat, particularly when the disease occurs in the horse species. They are nothing to be mistaken for the true black leg tumors, even if such did appear regularly in charbon in cattle, which is not the case. The *liver*, *spleen* (and some other organs) are *changed* in *volume* and *consistency*; they are gorged with dark, thick blood, just the reverse of livers and spleens in black leg.

Both maladies are preventable by vaccination—black leg by *one* method, discovered and extensively practiced in Europe by Arloing, Thomas and Cornevin; charbon by *another* method, discovered and extensively practiced by Pasteur and his agents.* Indeed, to the man of science there seems to be more analogy between charbon and septicemia than between charbon and black leg, and the ordinary observer is more apt to be confused when noticing the post mortem appearances of charbon and Texas fever, which present lesions much alike in the liver and spleen.

VACCINE AND VACCINATION.

(*Protective Virus.*)

There is no more mystery or secret about black leg vaccine than there is about small-pox vaccine. It simply consists of the germ of the disease so weakened by heat or other processes as to cause fever sufficiently high, but not enough to

* Both kinds of vaccination are practiced in this country—the virus being prepared by the principle of the discoverers, but by processes by which the germs may be applied safely by anyone, and preserved for an indefinite period.

sicken much, stunt or kill, just as vaccinia is, according to authorities, the germ of horse-pox or cow-pox, which is naturally such as to cause, when inoculated to man, only a mild fever and pustule. But by both inoculations the maladies that they are intended to prevent respectively are in reality guarded against for years.

The germs are obtained from swellings of cases of black leg, are properly weakened by heat at 80 deg. and 85 deg. C., and then worked into convenient form and inoculated twice, each dose about a week apart. The germs heated the most are the weakest and consequently inoculated first; the others are inoculated last. The operation is practiced with an ordinary hypodermic syringe in the tail, in the smooth, hairless portion underneath, from four to six inches from the body. Inoculation anywhere else, particularly where the skin is loose on the body, may occasionally cause local characteristic swellings of black leg, that are detrimental and dangerous to the animal.

The vaccine matter may be made into tablets.

If inoculation is practiced during an outbreak, only the animals showing no signs of the disease should be operated on, right after removing them from whence the disease started. On farms where black leg occurs more or less regularly the most rational and successful way is to inoculate young, say at five or six months of age. The death rate need not be feared much thereafter from black-leg among the protected stock, if good vaccine was used.

The following quotations show some of the tests abroad:

"Mr. Strebel, in the *Canton of Fribourg*, Switzerland, in the spring of 1886, inoculated with *modified* black leg virus 1275 young cattle and left unvaccinated 1829 head. They were on different more or less infectious grounds. Black leg had prevously made victims on some of the same pastures. The result was that only one of the vaccinated lot died of the disease, whilst seventy-one of the unvaccinated succumbed. In the districts of *Gruyere* and *Singine* 160 vaccinated and 433 not vaccinated young cattle were placed *together* on infectious pastures. Among the 160 vaccinated beasts only one was attacked by black leg; among the 433 unvaccinated twenty died from it."

This is only a modest illustration of hundreds of tests in which thousands of cattle were tried.

I give data of some years back, purposely to show the success of protective inoculation from the beginning. The results now are much better still.

The following presents some of our own field tests in 1889:

PROTECTIVE INOCULATION OF BLACK LEG. (Vaccination).

Date of 1st inoculation.	Date of 2d inoculation.	Number of cattle.	Condition of herd before inoculation.	Condition of herd after inoculation. Results and Remarks.
1889				
Oct. 8.	Oct. 16.	16	Outbreak of black-leg among young stock; several dead, one sick.	Stock left on grounds supposed infections; none died except the one that had the disease when vaccinated. The cases have since the freedom of all the infectious grounds and remain healthy where they before perished.
Oct. 25.	Nov. 3.	17	Outbreak of black-leg among herd. Two deaths.	Not a death after inoculation and the stock roams where death by black-leg caused devastation before.
Nov. 10.	Nov. 17.	10	Cattle healthy, but were on grounds presumably infectious.	There was no black-leg among these cattle, they are on grounds where in the years previous the disease caused ravages; cattle remain healthy.
Dec. 16.	Dec. 28.	39	Outbeak of black-leg. Three or four deaths.	Not one death after first vaccination even, and though since the two operations, the animals have been allowed all freedom on infectious soils, not a case occurred.

Thus of 82 head vaccinated at different dates in different localities where the disease actually existed and on grounds which had furnished the virus and had caused death, only one died, and that was actually suffering from black leg when inoculated.

IMMUNITY AGAINST BLACK LEG.

The principle by which this disease is prevented by inoculation or vaccination is not more clearly understood than it is in other affections so prevented. The foreign experiments and studies, confirmed by ours, point to the fact that calves that contract the disease never again become seriously ill from it, and that those inoculated purposely likewise remain free from it thereafter. This may explain why, as Arloing has thought, the young stock *particularly* succumb from it, and adult cattle do not suffer; it is probably because these *did* suffer from a mild attack *when young* and thereby they became proof. It has been pretty well established that old cattle in good condition, that have never grazed or been exposed outside where there is liability to receive the germs of black leg, can be inoculated almost as well as young cattle, because they never had become proof by a natural case, mild or serious. On this proposition, we are still experimenting with a view to render the prevention of black leg as cheap as possible. It is now practicable by any one.

The intelligent farmer and stockman may apply it himself.

SUPPURATIVE KERATITIS.

By G. E. GRIFFIN, D.V.S., U. S. Army.

It is simply astonishing the number of animals—horses especially—one observes suffering from this disease, and still more astonishing are the number of animals who lose the sight of one or both eyes from the neglect or maltreatment of these cases.

It has always been the impression of the writer that ophthalmology, so far as our domestic animals are concerned, has been very much neglected, with the results that very many—too many indeed—of our patients are condemned to long suffering and comparative uselessness.

It is a well-known fact that in many of the veterinary schools the subject of ophthalmology does not receive the attention it deserves, thus leaving the student to hunt the sub-

ject up for himself if he has time, and as a consequence the eye, its minute anatomy and in fact, often its comparatively common diseases, remain a mystery to a very large number of veterinarians. Veterinary literature is not very rich in works on ophthalmology, so the only resource left us is works on human ophthalmology and their application to our patients.

We shall briefly define suppurative keratitis to be an abscess or breaking down of the cornea or an abscess of the anterior chambers of the eye (this latter is sometimes known as hypopyon keratitis) and ulcer of the cornea, and may be produced with or apparently without inflammation.

The causes are a result or complication of lesions inflammatory of adjoining tissues, innutrition of cornea, but mostly from trauma, whip lashes, clubs, stones, pushing the finger into the eye, etc.; while in the human those of a scrofulous nature are particularly subject to it.

There are two varieties of this disease, the most common being the inflammatory, which is characterized by the existence of inflammatory symptoms; and the non-inflammatory or indolent, in which the substance of the cornea has a tendency to break down and slough without acute symptoms. Either variety may be circumscribed or diffuse.

In the inflammatory variety the symptoms are intense photophobia and profuse lachrymation, while the non-inflammatory type may be entirely free from these symptoms.

The diffuse yellowish cast appearing during inflammation of the cornea is the proof of the formation and infiltration of pus. If the breaking down of the corneal tissues does not concentrate itself at any circumscribed spot, there is a general weakening of the whole substance, until intraocular pressure produces a staphylomatous bulging forward in addition to the already existing opacity.

When a point or patch of suppuration is differentiated, we have an interstitial abscess which may break into an ulcer superficially or may empty itself backward, or possibly even both ways, forming thus a fistulous opening.

In abscesses of the chambers, the purulent matter is mixed with the aqueous humor, which it renders turbid and is de-

posited at the lower part of the eye, forming behind the cornea a kind of whitish crescent that rises more or less in front of the pupil. Sometimes an accumulation of pus in the anterior chamber is difficult to distinguish from a condition of the cornea known as onyx, which is a collection of pus between the lamellæ of the cornea, but by means of oblique illumination we can generally locate the deposit.

As regards treatment the writer has found that when inflammatory symptoms are present a solution of atrophia sulphate, four grains to one ounce of distilled water, should be dropped in the eye or eyes freely several times daily for its soothing effect and as a preventative of iritic adhesion by contracting the iris. Astringent and antiseptic lotions are useful, the organ should be carefully and securely bandaged to exclude light and secure rest and the following formula used every morning.

℞

Acidi borici,	Gr. xii.
Aquæ menthæ piperitœ,	ʒi
Vini opii,	ʒii.
Aquæ Camphoræ, Aquae distillate,	*aa* ℥ ii.
Hydrarygyri bichloridi,	Gr. $\frac{1}{80}$.

Indolent ulcers should be aroused to a certain inflammatory activity by stimulation, by means of a nitrate silver pencil with calomel insufflations; of course the general health of the patient should be attended to as well as the sanitation. Corneal ulcers, whether deep or superficial, seldom require operative treatment in our patients, but should perforation threaten paracentesis should be done at once and relief from severe pain thus gained. This operation should also be done when a diagnosis of pus in the anterior chamber is made and when, after waiting a certain time for its absorption, it fails to disappear.

Paracentisis of the anterior chamber has been done by the writer in the following manner: A small scalpel, speculum, forceps and small spatula, together with some absorbent cotton, bandages, sponges, syringe, etc., having been placed con-

veniently, an instillation of atrophia is made to dilate the pupil, thus preventing as much as possible the danger of anterior synechia. The pupil being well dilated anæsthetize the cornea by an application of cocaine, secure the patient by means of the twitch, or if very nervous cast; adjust the speculum, firmly seize the conjunctiva inferiorly with the forceps and hold it down, exposing part of the inferior portion of the sclerotic; the small scalpel is now introduced at the cornea—scleral margin inferiorly—in a perpendicular direction, thus piercing, not splitting, the cornea. When the point of the scalpel has passed the substance of the cornea, the blade is turned parallel with the iris and pushed forward in front of same till an opening of the desired size is made. If in the outrush of aqueous the iris should happen to be swept into the wound, it must be replaced by the spatula and instillation of eserine made. The absorbent cotton and bandages should now be applied and the patient placed in a dark box if possible. Light food and scrupulous cleanliness are absolutely necessary.

Staphyloma of the cornea is very often produced by a perforating ulcer. Its only treatment is by operation as above.

EXTRACTS FROM FOREIGN JOURNALS.

ACTINOMYCOSIS IN THE PHARYNX.

By Mr. Guinard.

A cow in bad condition which was killed in a slaughter house, had presented a swelling in both parotid regions, and in the inter-maxillary space. This, when afterwards dissected, showed that the connective tissue of the parotid region, the postero-superior part of the inter-maxillary space, and the pharynx itself, were surrounded by or changed into a lardaceous, yellowish tissue, through which there were several purulent sacs. The pharynx was ulcerated in the postero-superior part, the edges of the ulceration protruding into the pharyngeal cavity. A communication existed between the pharynx and the deep abscesses of the tumor. The caseous, yellowish suppuration contained numerous colonies of actinomycosis.—*Ann. of Vet. Med. and Zoot.*

TREATMENT OF SEROUS CYSTS.

By Mr. Chobaud.

These soft tumors may be observed in every region of the body, but are most frequently found at the elbow, (caped elbow), at the hock, (caped hock), on the anterior face of the fetlock, of the knee, on the internal face of the cannon, on the back, the loins, the withers and the hips. The methods of treating them are quite various and numerous, comprising douches, friction, massing, puncture, pressure, setons, cauterization, iodine injections, electro-puncture, etc. Sometimes the treatment is successful and at others it proves very unsatisfactory. As the successful result of twenty-five cases treated by him, the author recommends the following measures, as constituting a rational treatment which has the important advantage of shortening the period of the detention of the animal from his work, twenty days only being required for the course. The first indication is to puncture the cyst in the most dependent part, to empty it of its contents, and then to fill it with oakum moistened with a concentrated alcoholic solution of bichloride of mercury, (1 part in 25). The oakum is left in for from twenty-four to forty-eight hours, and then pulled away. An acute inflammation in the walls of the cyst soon follows, which is itself followed by their adhesion and rapid cicatrization.—*Repert. Vet. San. Police.*

ACCIDENT FOLLOWING THE CASTRATION OF CRYPTORCHID.

By Professor Thomassen.

A horse affected with double cryptorchidy had been operated upon by the method employed by Professor Degive. Ten days after the operation and while the general condition of the patient seemed quite satisfactory, general symptoms were manifested. The patient had a high fever and made violent expulsive efforts, which were accompanied by the dropping of a few balls of manure. The exploration of the rectum showed an incomplete obliteration of the entrance of the pelvis, by a largely tympanized portion of the large in-

testine. The intestinal mass was reduced by the taxis, but then it was found that adhesions with the abdominal walls existed at the point where the peritoneum had been torn during the first operation, having been lacerated by the hand introduced in the rectum. From this day the patient grew worse, acute peritonitis followed, and the animal died a few days afterwards. It was found at the post mortem that the large colon at its pelvic curvature, and a portion of the small intestines were adherent to the abdominal walls at the pelvic entrance on the left side, and that an abscess existed on a level with the adherent portions. The author thinks that death was caused by the rectal manipulation made to relieve the adhesions, and that if the abscess had been left alone it would most probably have evacuated through the inguinal tract, and thus the peritonitis, instead of becoming general and fatal, would have remained local and in all probability harmless.—*Annales de Belg.*

FATAL HEMORRHAGE DUE TO A NAIL.

By Mr. Daignet.

A six-year-old mare was suddenly taken with colic, which soon disappeared, and having been placed in a box stall, she laid down and died several hours after without exhibiting the slightest symptom indicating the approach of her sudden ending. At the autopsy the stomach was found four times its normal size and filled with clotted, together with a small quantity of liquid, blood. This fluid was also found in a small portion of the small intestines, about five or six yards in length; it was all mixed with mucosities. The large colon and the cœcum were distended with a mass of food, hard and dry. The œsophagus, at about the middle of the thoracic portion, had a wound about one-quarter of an inch long, concealed by a dark infiltration through the surrounding connective tissue. This wound was connected with the posterior aorta, which presented also, at that point, a wound with irregular edges, and measuring about one inch in length. Death was due to an aortic hemorrhage. The cause of it was found

in the mass of the bloody clots of the stomach in the form of a nail about three inches long, bent in the middle at about a right angle.—*Repert. Vet. San. Police.*

FRACTURE OF THE LARGE SESAMOIDS.

By Mr. Schoneck.

During exercise on ice, while being driven at rapid trot, a mare stumbled suddenly and so severely that she was with great difficulty prevented from falling, and on recovering her feet she was found to be lame on both fore legs, to such an extent as to be quite unable to move a single step. She presented the following symptoms: The posterior legs were carried well under the body; on the left fore leg the fetlock had dropped down to such extent that the coronet formed a right angle with the cannon; both fetlocks were swollen and very painful, principally on the back; on the left side under the skin, a small piece of loose bone was detected; the perforatus tendon was relaxed and painful to the touch; the perforans and the suspensory ligaments were intact. A diagnosis of fracture of the sesamoids was confirmed at the post mortem, the animal being immediately destroyed.—*Berlin Thier Wochen.*

EXTIRPATION OF THE OCULAR GLOBE.

By Mr. W. C. Shimmel.

In cases of exophthalmy in dogs, the globe of the eye sometimes assumes enormous proportions, either because of having been directly injured by the traumatic cause or under the simple influence of other surrounding irritating causes. In these cases reduction becomes impossible, and the only remedy is the removal of the globe. The author remarks that the complete extirpation of the eye is liable to the objection of leaving a large vacuum in the orbit, which is accompanied by a well marked and homely looking dropping of the lids. To obviate this, he preserves the posterior part of the capsule, removing only the anterior portion of the sclerotic. This simple operation is never complicated with sympathetic

ophthalmia, and the wound being dressed antiseptically heals in a few days. The eyelids drop a great deal less than when the complete amputation is performed.—*Œsterreich Mon. f. Thierh.*

GRADED REVULSION IN THE TREATMENT OF HYDROTHORAX.

By Mr. Minette.

This is a form of treatment recommended in the *Journal of Zootechnie* by Mr. Brunet and which was tested by the author. The treatment, besides the ordinary internal administration of diuretics, consists in the application of vesicating agents on the sides of the chest, covering the parts by degrees, adding a supplement of blisters, so as to cover a greater surface day by day, until nearly the entire thoracic surface is covered. In the case reported by Mr. Minette the symptoms of hydrothorax were well marked and had existed for several weeks. The treatment lasted a few days and was followed by complete recovery.—*Recueil de Med. Vet.*

RECTAL OBSTRUCTION.

By Mr. Detroye.

[The seasonableness of the paper of Mr. Phillips, which we publish in another part of this issue, is well illustrated by the case reported by Mr. Detroye.--Ed. Review]. An aged horse had lost his appetite for three days, and having some colicky pains the author was called to visit him. He found him with the following symptoms: Facies normal, respiration accelerated, pulse 90, loins stiff, micturation frequent in small quantity, urine thick, abdomen slightly tympanitic, flank hard. No pain on pressure on the abdomen, percussion at the flanks giving but little resonance, auscultation of the left side giving hearing of fine and reported crepitating sounds, and on the right slight metallic noises, quite regular. Movement of the bowels almost stopped. A diagnosis of intestinal obstruction is made, and the animal submitted to severe cathartic treatment, notwithstanding which he dies four days after. At the post mortem extensive peritonitis was found, and the small

colon was filled with a large excremential mass composed of hay and undigested oats, the grains of oats being implanted on the surface in such a way that many of them had run entirely through the mucous membrane and partly through the muscular coat. Amongst the conclusions of the author he adds: "One must never neglect the rectal exploration in case of intestinal obstruction or even of simple indigestion. Had it been done in this case, no doubt the patient would have been saved.—*Recueil de Med. Vet.*

BIBLIOGRAPHY.

ANIMAL PARASITES OF SHEEP. By Dr. Cooper Curtice, D.V.M. Bureau of Animal Industry, Washington, D. C.

The Department of Agriculture in Washington has for some time been considering the propriety of issuing a number of works on veterinary subjects, and through the Bureau of Animal Industry the first book has been recently issued, treating a very important and interesting subject, that of Animal Parasites of Sheep. To Dr. C. Curtice, and we understand Dr. Salmon, the profession is indebted for this valuable addition to our American veterinary literature.

This excellent book forms a volume of a little over 200 pages, printed and bound in the *usual form of publications* issued from the Department of Agriculture and is illustrated by thirty-six excellent plates, showing the anatomy of most of the parasites and illustrating the location of their habitats and the appearance of the organs where they are found.

Beginning by a few general remarks as to the diagnosis of parasitic diseases, etiology, development of the parasites and treatment, the author at once enters into the main part of the subject and successively presents to the reader the special parasites of the nose, those of the skin, of diverse organs, those of the alimentary canal and its appendages, the subject of parasites of the lungs terminating the work.

Animal Parasites of Sheep is an excellent work, arranged with symmetry and carefully systematic throughout, taking

the history of every parasite of sheep in a thorough manner, and giving to the reader a description of each individual, his life, occurrence and the diseased process to which each gives rise, with the treatment appropriate to each, as far as possible. We feel confident that as a book of reference or as one of general inquiry and study it will prove a most valuable acquisition to all students of that special part of helminthology—a science which is probably too often neglected by the veterinarian and which we fear is too much ignored in our veterinary colleges.

CORRESPONDENCE.

GRADUATES AND NON-GRADUATES.

CEDARBURG, WIS., Aug. 5, 1890.

Editor of Review :—In pursuing the late articles on this subject by your Iowa and Illinois correspondents, we Wisconsin boys are brought in an adnubilate dilemma regarding graduates and non-graduates in these two States. If both articles are strictly correct, then I cannot see the possible reason why the fifteen or twenty new graduates who annually locate in the State of Illinois in the great majority of cases soon obtain permanent, well-paying practices, and soon make many of the old-fashioned "horse-doctors" hunt for some other employment in case they have a family to support. This is a fact well known to graduates or non-graduates.

On the other hand I cannot comprehend why these Iowa "butchers," under the described circumstances, are not obliged to go the same way that Mr. Quack is going in Illinois.

Evidently both correspondents go to the extremes in choosing their weapons of attack and defense against each other—one advocating and urging, and the other denouncing and condemning veterinary legislation.

Here several questions arise, namely—Who is qualified to practice and who is not? Why and by whom is legislation called for, and why do the *non-graduates* so bitterly oppose it?

Is the desired legislation not intended as promulgatory to our profession by prohibiting all but *qualified* men to practice, or is it only urged by the graduates to assist them in eradicating quackery?

To answer these questions thoroughly would occupy too much time and space.

The proposed legislation is certainly not intended to exclude from the profession all but graduates, for this would be certainly a mistake. But all we *want* and *will* and *must* accomplish is the eradicating and extinction of "quacks and quackery."

I draw a distinction between non-graduates and quacks, for I positively know that there are some competent, diligent, hard-working, honest non-graduates in existence who, through careful observation, long and tireless studying, at home and in the sick stall, have succeeded in gathering a knowledge so close to perfection as to make many a graduate blush.

Observe such a practitioner in administering drugs to a sick animal and ask him about the drug he is using, and you will be surprised to hear with what accuracy and enthusiasm he describes its physiological actions in a common language—the Latin, of course, he don't understand, for he was never fortunate enough to obtain a college education. He is self-made, his knowledge and ability are founded on observation, patient studying and long experience, and he deserves to be ranked amongst his more fortunate professionals. He is no disgrace to the profession. The success in any business not only depends on a theoretical knowledge of the same, but chiefly upon the practical ability; and such is emphatically the case in our profession.

The genuine veterinarian is not made but born, and it is only *him* in whose veins horseman's blood flows from infancy, and whose love and inclination to his profession is a gift of nature, who will make horsemanship a success. College education is secondary.

But there is one kind of competitors who throw disgrace

upon our profession, and they are the "adolescents" described by your Illinois correspondent.

A non-graduate or quack, no matter how ignorant or brutal, will never materially influence or degrade our profession, for the intelligent public well recognize and duly respect the humble graduate, knowing and comprehending the necessity of a thorough college education. When, however, one of these brainless, high-toned, kid-glove adolescents, with Latin diaploma, who is justly expected to understand his business, steps forth in all his imaginary majesty and commences imposition on the people, then and there, I say, the horse-whip ought to be applied. Fortunately, however, these are very scarce and their career is of only short duration, for after their surplus cash is exhausted they drop off to be never heard of again. To provide against these I see no remedy. Our veterinary colleges cannot avoid them by adopting more strict examinations, for as a rule they are able to pass them, nor can we exclude them through legislation by also causing graduates to pass examinations.

To derive our point in view, however, it is certainly essential that all who have not qualified should pass an examination before they can obtain the rights and title of a veterinary surgeon.

Here the proposed legislation offers to legally recognize and protect the qualified non-graduate, and confer on them all the rights, powers and privileges of the regular graduate, and there is still that tremendous howling.

Under these circumstances I see no earthly reason why the qualified non-graduates should not assist the graduates in their work in procuring the proposed legislation, which they certainly will do. Now then, who does the howling? What class is it who continually denounce and condemn graduates and legislation through the columns of THE REVIEW? Most certainly they are those who know that the legislation will terminate their career—the non-qualified—the quacks and nobody else.

J. J. KRAUS, D.V.S.

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